OIPE JC14 MAR 19 2004 PATENT & TRADEMARK OFFICE

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SAF 1742

Attorney Docket # 5095-58PCPA

Patent

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of
Reimar FINCK et al.
Serial No.: 09/423,911
Filed: February 28, 2000
For: Method and Installation for Producing Hot Rolled Aluminium Tape Intended for Can Making

Examiner: J. Combs
Group Art: 1742

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March 17, 2004
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Alfred W. Froebrich
Name of applicant, assignee, or Registered Representative

Signature

March 17, 2004
Date of Signature

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APPEAL BRIEF

SIR:

This is an appeal, pursuant to 37 C.F.R. §1.192(a) from the decision of the Examiner in the above-identified application, as set forth in the Final Office Action wherein the Examiner finally rejected appellant's claims. The rejected claims are reproduced in the Appendix A attached hereto. A Notice of Appeal was filed on November 17, 2003. This Appeal Brief is being submitted in triplicate.

The fee of $330.00 for filing an Appeal Brief pursuant to 37 C.F.R. §1.17(f) is submitted herewith. Appellants requests a two-month Extension of Time of the original shortened statutory response period to file this Appeal Brief. A Petition for the two-month extension of time is enclosed herewith along with the fee of $420. Any additional fees or charges in connection with this application may be charged to our Patent and Trademark Office Deposit Account No. 03-2412.

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REAL PARTY IN INTEREST

The assignee, Mannesmann AG, of applicants, Reimar Finck and Jürgen Hirsch, is the real party of interest in the above-identified U.S. Patent Application.

RELATED APPEALS AND INTERFERENCES

There are no other appeals and/or interferences related to the above-identified application at the present time.

STATUS OF CLAIMS

The original claims 1-4 were canceled and claims 5-8 were added by preliminary amendment filed November 16, 1999. Claims 5 and 7 were amended during prosecution in amendments filed on May 31, 2001, February 11, 2002, September 3, 2002, and April 2, 2003. Claims 5-8 were finally rejected in an Office Action dated June 18, 2003. These claims are reproduced in the attached Appendix.

STATUS OF AMENDMENTS

There have been no Amendments filed subsequent to the Final Office Action.

SUMMARY OF THE INVENTION

Appellants' invention is directed to a method and a plant for producing high quality strip material for can making using hot-rolling mills with a yearly capacity below 250,000 tons. The strip material produced by the inventive process has a cubic structure which is beneficial for the

reshaping of the aluminum strip required for can making (see page 1, line 24 to page 2, line 2; and page 3, lines 2-8 of the specification).

As shown in Fig. 1 of the present application, a plant has a four-high reversing roll stand 1, a four high reversing finishing roll stand 2, and a continuous pressure -type coil furnace 3 (see also page 7, lines 1-4). Feed material 4 in the form of a heated aluminum block is rolled through the four-high reversing roll stand 1 to form a rough strip 6, which is introduced directly into the four-high reversing finishing roll stand 2 to form a finished strip (page 7, lines 5-15). After the last finishing roll pass, the finished strip is coiled and deposited in the furnace 3. The rolling passes through the four-high reversing finishing roll stand 2 are performed at a temperature below the recrystallization temperature (page 4, lines 1-5; and page 8, lines 11-14). Recrystallization is suppressed in the last finishing roll passes by controlled temperature management (page 3, lines 11-14). After exiting the finishing roll stand 2, the coiled strip is then heated to recrystallization temperatures in the furnace 3 (page 4, lines 5-9; and page 8, lines 8-11). Accordingly, recrystallization occurs only outside the rolling train (page 3, lines 22-25).

ISSUES

1. Whether claims 5 and 6 are patentable under 35 U.S.C. §103 over U.S. Patent No. 5,362,340 (Daly)?

2. Whether claims 7 and 8 are patentable under 35 U.S.C. §103 over Daly in view of U.S. Patent No. 5,548,882 (Windhaus)?

GROUPING OF CLAIMS

The pending claims are, of which claims are independent. The claims are grouped as follows:

Group I -- claims 5 and 6, which stand or fall together.

Group II -- claims 7 and 8, which stand or fall together.

ARGUMENT

GROUP I (CLAIMS 5 AND 6)

Independent claim 5, as amended, recites "suppressing recrystallization of the rolled strip by controlled temperature management of the strip so that last of the hot rolling passes are carried out without recrystallization on the reversing roll stand from coil to coil in a temperature range of 260°C to a maximum of about 280°C, which is below a recrystallization temperature of the rolled strip".

Daly discloses a method for producing aluminum can sheet having low earing characteristics. According to Daly, an ingot is first heated and then subjected to hot rolling in a reversible hot mill to produce an intermediate gauge sheet (see col. 3, lines 22-28). Daly further discloses that the intermediate gauge sheet should exit the hot roll at a temperature of about 249°C to 405°C (col. 3, lines 31-33). At col. 3, lines 36-46 Daly states that the recrystallization should minimized or reduced. Daly further discloses that if the exit temperature of the intermediate gauge strip is lower that 332°C, annealing may be performed, and if the exit temperature of the intermediate gauge strip is greater than 332°C, then self annealing may occur (see col. 3, lines 47-57). Accordingly, Daly discloses that the exit temperature of the intermediate gauge strip 30 (the strip which exits the hot rolling mill) may be above 332°C.

It is respectfully submitted that independent claim 5 is allowable over Daly because Daly fails to teach " suppressing recrystallization of the rolled strip by controlled temperature management of the strip so that last of the hot rolling passes are carried out without recrystallization on the reversing roll stand from coil to coil in a temperature range of 260°C to a maximum of about 280°C, which is below a recrystallization temperature of the rolled strip", as recited in independent claim 5.

A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984). Although Daly discloses that recrystallization should be minimized or reduced, Daly specifically discloses at col. 3, lines 53-57 that the exit temperature of the intermediate gauge sheet 30 may be higher than 332°C. The intermediate gauge sheet 30 is the sheet which exits the hot mill 20 (see col. 3, lines 31-35 of Daly). Since Daly discloses that the exit temperature of the intermediate gauge sheet 30 exiting the hot mill may be greater than 332°C, Daly fails to teach or suggest " suppressing recrystallization of the rolled strip by controlled temperature management of the strip so that last of the hot rolling passes are carried out without recrystallization on the reversing roll stand from coil to coil in a temperature range of 260°C to a maximum of about 280°C, which is below a recrystallization temperature of the rolled strip", as recited in independent claim 5.

Dependent claim 6, being dependent on independent claim 5, is deemed allowable for the same reasons expressed above with respect to independent claim 5.

For the foregoing reasons, it is respectfully submitted that the combined teachings of fail to establish a *prima facie* case of obviousness with regard to the subject matter recited in claims. The Final Rejection of the claims in Group I should be reversed.

GROUP II (CLAIMS 7 AND 8)

Independent claim 7 recites "means for finish rolling the rough strip in a number of hot rolling passes so that last of the hot rolling passes occur without recrystallization in a temperature range of 260°C to a maximum of about 280°C, which is below a recrystallization temperature of the rolled strip".

As stated above with respect to the arguments for Group I claims, Daly discloses that the exit temperature of the intermediate gauge sheet 30 exiting the hot mill may be greater than 332°C. Accordingly, Daly fails to teach or suggest "means for finish rolling the rough strip in a number of hot rolling passes so that last of the hot rolling passes occur without recrystallization in a temperature range of 260°C to a maximum of about 280°C, which is below a recrystallization temperature of the rolled strip", as expressly recited in independent claim 7.

Windhaus fails to teach or suggest what Daly lacks. Windhaus discloses a thin-slab casting installation which includes a pusher-type pallet system. However, Windhaus does not specifically disclose any temperatures at which hot rolling and heat treatment occur. Accordingly, Windhaus also fails to teach the above recited limitations of independent claim 7. In view of the above amendments and remarks, it is respectfully submitted that independent claim 7 is allowable over Daly in view of Windhaus.

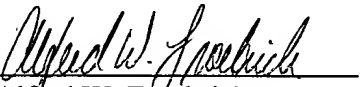
Dependent claim 8, being dependent on independent claim 7, is deemed allowable for the same reasons expressed above with respect to independent claim 7.

For the foregoing reasons, it is respectfully submitted that the combined teachings of fail to establish a *prima facie* case of obviousness with regard to the subject matter recited in claims. The Final Rejection of the claims in Group II should be reversed.

CONCLUSION

For the foregoing reasons, it is respectfully submitted that appellants' claims are not rendered obvious and are, therefore, patentable over the art of record, and the Examiner's rejections should be reversed.

Respectfully submitted,
COHEN, PONTANI, LIEBERMAN & PAVANE

By 

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APPENDIX

1.-4. (canceled)

5. (previously presented) A process for producing hot-rolled aluminum strip for can making, comprising the steps of:

feeding a feed material into a reversing roughing stage to form a strip;

finish rolling the strip from a coil to a coil in a reversing roll stand immediately after the roughing stage in a number of hot rolling passes;

suppressing recrystallization of the rolled strip by controlled temperature management of the strip so that last of the hot rolling passes are carried out without recrystallization on the reversing roll stand from coil to coil in a temperature range of 260°C to a maximum of about 280°C, which is below a recrystallization temperature of the rolled strip;

coiling the strip into finished coils; and

feeding each finished coil to a continuous pusher type furnace for heat treating the finished coils to a temperature above the recrystallization temperature of the rolled strip within a range including 315°C to 320°C, as a final step for producing the aluminum strip for can making.

6. (previously presented) A process according to claim 5, wherein a last three hot rolling passes are carried out without recrystallization.

7. (previously presented) A plant for carrying out a process for producing hot-rolled aluminum strip for can making, comprising:

a reversing roughing stage for aluminum feed material which is used hot, the roughing stage being capable of producing a rough strip;

means for finish rolling the rough strip in a number of hot rolling passes so that last of the hot rolling passes occur without recrystallization in a ~~non-critical~~ temperature range of 260°C to a maximum of about 280°C, which is below a recrystallization temperature of the rolled strip, the finish rolling means including a four-high reversing roll stand and a respective winding device arranged on each side of the roll stand for coiling the strip;

means for heat treating the finish coiled strip to a temperature above the recrystallization temperature of the rolled strip within a range including 315°C to 320°C as a final production stage for producing the aluminum strip for can making, the heat treating means including a pusher-type coil furnace and a pallet transport system via which a number of contacting pallets, each holding a coil, is transported through the pusher-type coil furnace by displacement of the pallets; and

means for transporting the coiled strip to the heat treating means, one of winding devices corresponding with the transporting means, the transporting means being in working cooperation with the pallets.

8. (previously presented) A plant according to claim 7, wherein the plant has a yearly production capacity below 250,000 tons.